

THE *NEMATUS* “MAGUS GROUP” (HYMENOPTERA: TENTHREDINIDAE)
IN NORTH AMERICA

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Abstract.—Two species are recognized in the *Nematus* “*magus* group” in North America, *Nematus magus* (Marlatt) on *Salix* sp. from eastern Canada and northeastern United States west to Northwest Territories and British Columbia and *Nematus appalachia*, **new species**, from the Appalachians of West Virginia, Tennessee, and North Carolina. The species are described, keyed, and compared to Palearctic species.

Key Words: Nematinae, sawflies

The species groups of *Nematus* Panzer were designated by Ross (1951) and Smith (1979) in Nearctic catalogs and were never formally defined. They were based solely on the Nearctic fauna. One species, *Nematus magus* (Marlatt), was included in the “*magus* group,” a group characterized primarily by the long, well-sclerotized lancet with curved annuli and lacking hairs or other lateral armature (Figs. 5–6). The lancets of other species of *Nematus* usually have straighter annuli with annular hairs or spines, or are very short and triangular. In the male, the procidentia (central projection of the eighth tergum, Fig. 10) is unusually long and slender, more than one and one-half times longer than the breadth of its truncate apex.

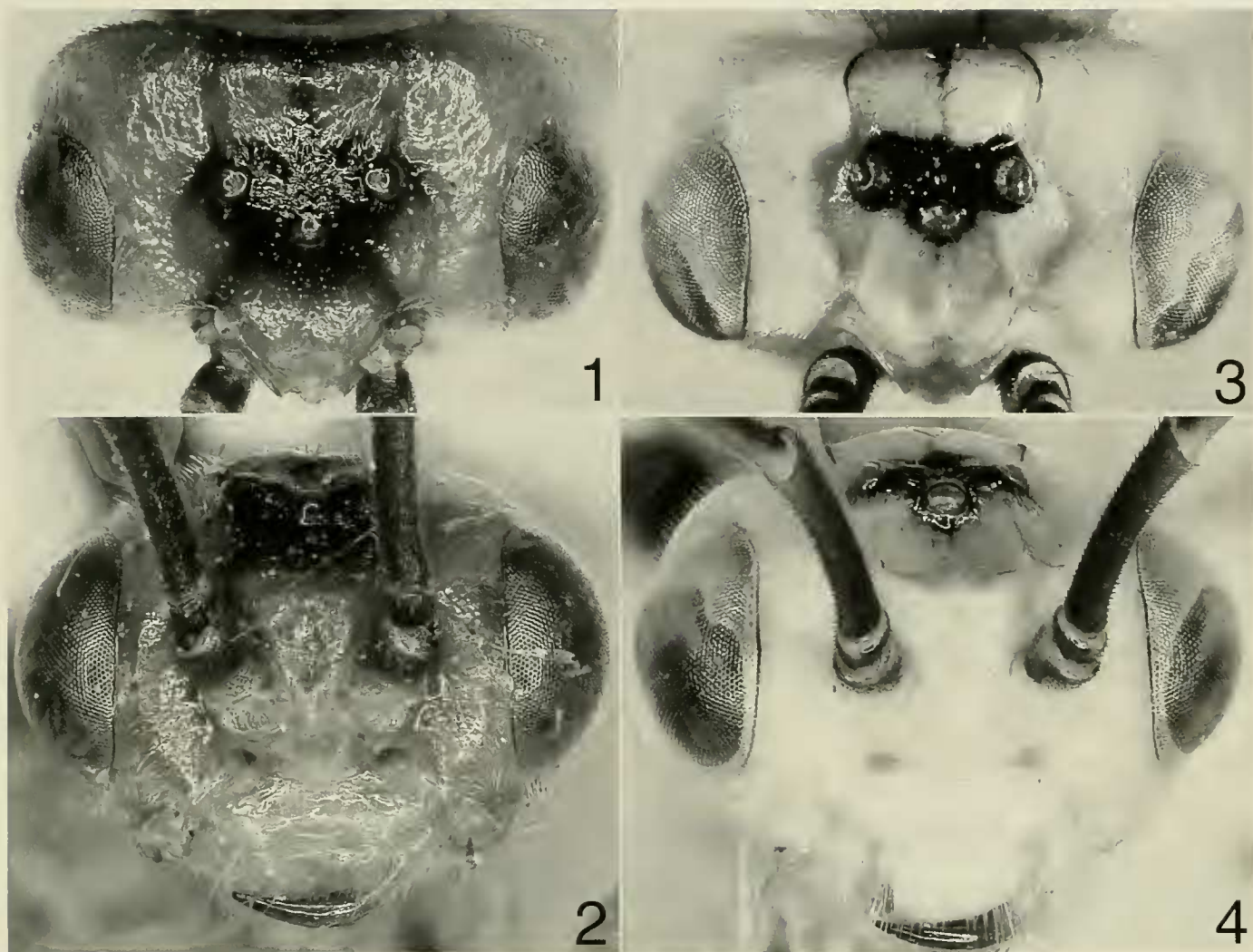
Very few specimens have been available for study of the “*magus* group” in North America, and those that were known were from eastern Canada and Maine. A number of specimens have now been taken as far west as Northwest Territories and British Columbia and south in the Appalachians to West Virginia and Great Smoky Mountains

National Park in Tennessee and North Carolina. With the discovery of the new species from the central and southern Appalachians, and, as part of an ongoing study to characterize the sawfly fauna of this area, I here review the “*magus* group” for North America.

Correlation of the species groups designated for Nearctic *Nematus* with the Eurasian fauna has not been studied. However, I have compared Nearctic specimens of the “*magus* group” with the Palearctic *Nematus miliaris* (Panzer) which is very similar, and this species, *N. fagi* (Zaddach) of Europe, and the two Nearctic species treated here may be grouped together.

KEY TO NEARCTIC SPECIES

1. Dark orange with black between and surrounding ocelli and sometimes on postocellar area; abdomen usually with mesal black marks on terga; head sculpturation irregularly wrinkled (Figs. 1–2); lancet (Fig. 5) with first annulus abruptly curved dorsally, serrulae narrower and deeper *magus* (Marlatt)
- Mostly whitish with frontal area and dorsum of thorax and abdomen pale orange, interocellar area black; abdomen with paired black marks



Figs. 1–4. Heads. 1, *Nematus magus*, dorsal view. 2, *N. magus*, front view. 3, *N. appalachia*, dorsal view. 4, *N. appalachia*, front view.

on each terga; head shining, without sculpturation (Figs. 3–4); lancet (Fig. 6) with first annulus evenly curved, serrulae broader and shallower *appalachia*, n. sp.

Nematus magus (Marlatt)
(Figs. 1, 2, 5, 7, 10, 11)

Pteronius magus Marlatt 1896: 67; Konow 1905: 56.

Nematus magus: Ross 1951: 44 (“East. Canada”).—Smith 1979: 68 (Que., Maine; *Salix* sp.; as “*magnus*” [error]).

Female.—Length, 7.1–7.5 mm. Antenna black above, dark orange beneath. Head (Figs. 1, 2) dark orange with area enclosing and surrounding ocelli and sometimes posterior third of postocellar black, black area not reaching eyes or antennae. Thorax dark orange with mesoprescutum except lateral margins and large longitudinal spot on each lateral lobe black; mesosternum sometimes

with black spots. Legs dark orange. Abdomen orange with basal plates except laterally and center of 2nd tergum black, and various sized mesal black spots on remaining terga; sheath black. Wings hyaline; costa and stigma amber; remaining veins dark brown.

Antenna 2.7× head width; segment 3 shorter than 4 and subequal in length to segment 5; ratio of segments 1–5 as 10:8:45:50:45. Head shining, but with irregular wrinkled sculpturation (Figs. 1–2). Malar space broader than diameter of front ocellus. Hind basitarsus 0.7× length of remaining tarsal segments combined. Sheath short, thickened, in lateral view rounded at apex, in dorsal view broad, tapering to acute apex (Fig. 7). Lancet (Fig. 5) long, without hairs or other armature on annuli; first annulus sharply curved dorsally; distance between first and second annuli subequal to distance

between second and third annuli; serrulae narrow and deep, with 5–6 fine posterior subbasal teeth.

Male.—Length, 6.8 mm. Color similar to that of female. Procidentia $1.8\times$ longer than breadth of truncated apex. (Fig. 10). Penis valve in Fig. 11, elongate, with stout apical spine and with short, stout spines on dorsolateral surface.

Holotype.—Female from “Can.” Type No. 10243 in the Academy of Natural Sciences, Philadelphia, PA. Marlatt (1896) stated “One female. Canada.”

Specimens examined.—BRITISH COLUMBIA: Hansard, No. BC 42-1706, 1-7-1948, F.I.S., *Salix* sp. (1 ♀). MAINE: Lincoln, VI-16-1932, willow #58 (1 ♀); Niscatous Lake [Hancock Co.], VIII-27-1932, on willow, #49 (2 ♀), same except 6-28-32, bred, willow (1 ♂); Bar Harbor, Aug. 31, 1936, bred, on willow, lot #298 (1 ♀). NORTHWEST TERRITORIES: Norman Wells, 4-VII-1949, W. R. M. Mason (1 ♀). QUEBEC: Cascapedia R., 3-VII-1935, willow, C. C. Smith, 18786-8 (1 ♀), same except 5-VII-1935 (1 ♀).

Food plant.—*Salix* sp. According to label data, bred from willow in Quebec and Maine.

Discussion.—This species is very close to *Nematus miliaris*, which is recorded from Europe, Asia Minor, Central Asia, Siberia, and Korea and is known to feed on *Salix* and possibly *Populus*, and *N. fagi* from central and southeastern Europe which feeds on *Fagus* (Benson 1958, Zhelochovtsev 1988, Lacourt 1999). Benson (1958) and Zhelochovtsev (1988) separated the two Palearctic species by slight differences in color of the hind tibiae and the larvae of *N. miliaris* feeding gregariously on *Salix* and the larvae of *N. fagi* feeding solitarily on *Fagus*. They could not differentiate them by genitalic structures. The coloration, female lancets (*N. miliaris* illustrated by Benson 1958, fig. 724, and Zhelochovtsev 1988, fig. 66-4, the latter as *N. capreae* L.), and male penis valves (*N. miliaris* illustrated by Zhelochovtsev 1988, fig. 68-1, as *N. ca-*

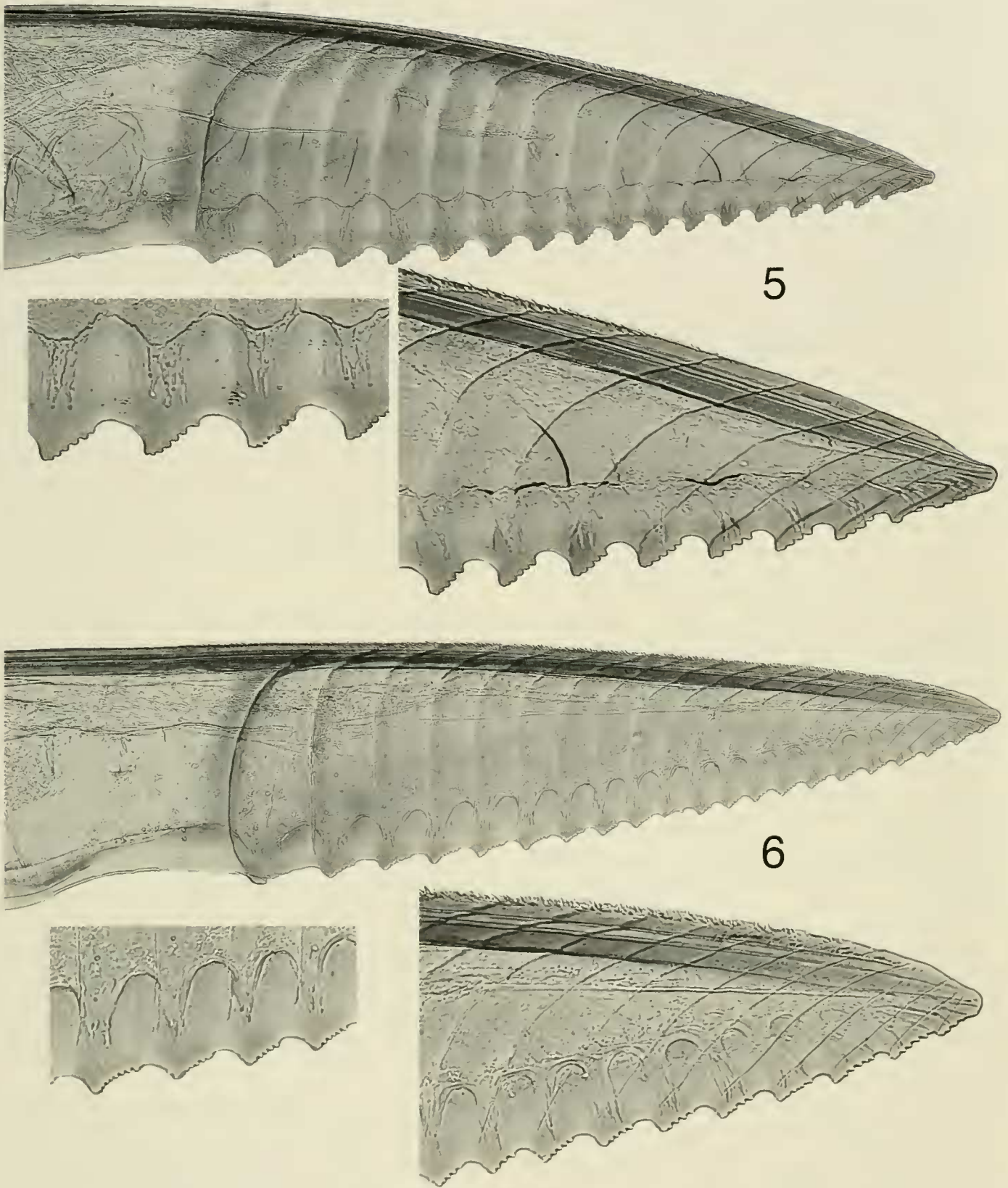
preae) of *N. miliaris* and *N. magus* are also practically indistinguishable. With limited material, especially of males, I prefer to keep the species separate since there are slight differences such as more extensive black coloration on the head and mesonotum in *N. miliaris*, the slightly broader sheath in dorsal view in *N. miliaris* (Fig. 8), and the slightly longer and more slender procidentia in the male of *N. magus* (Fig. 10). The two species treated here and the two Palearctic species are, however, counterparts, and can be considered in the same group.

The single specimens from Northwest Territories and British Columbia are disjunct from the eastern records; however, and I cannot differentiate them from the eastern specimens.

Nematus appalachia Smith, new species
(Figs. 3, 4, 6, 9)

Female.—Length, 7.8–8.0 mm. Antenna black above, undersurface pale brown. Head (Figs. 3–4) whitish with frontal area and postocular area orange and interocellar area, postocellar lateral furrows, and median posterior spot of postocellar area black. Thorax with pronotum and entire underthorax whitish; dorsum orange; small mesal spot and central longitudinal stripe on each mesonotal lateral lobe, small spot on downturned area of each lateral lobe, area immediately surrounding cenchrus, and posterior spot on metanotum black. Legs with coxae, trochanters, and femora and fore and midtibiae white; hind tibia brownish; tarsi brownish. Abdomen white below, orange above with paired black spots mesally on terga, black separated by fine pale lines; cercus black with white at extreme base; sheath orange, black apically. Wings hyaline, costa, stigma, and apical half to two-thirds of subcosta whitish; remaining veins dark brown.

Antenna $2.9\times$ head width; third segment shorter than fourth and subequal in length to fifth segment; ratio of segments 1–5 as 10:7:55:70:63. Head shining, impunctate

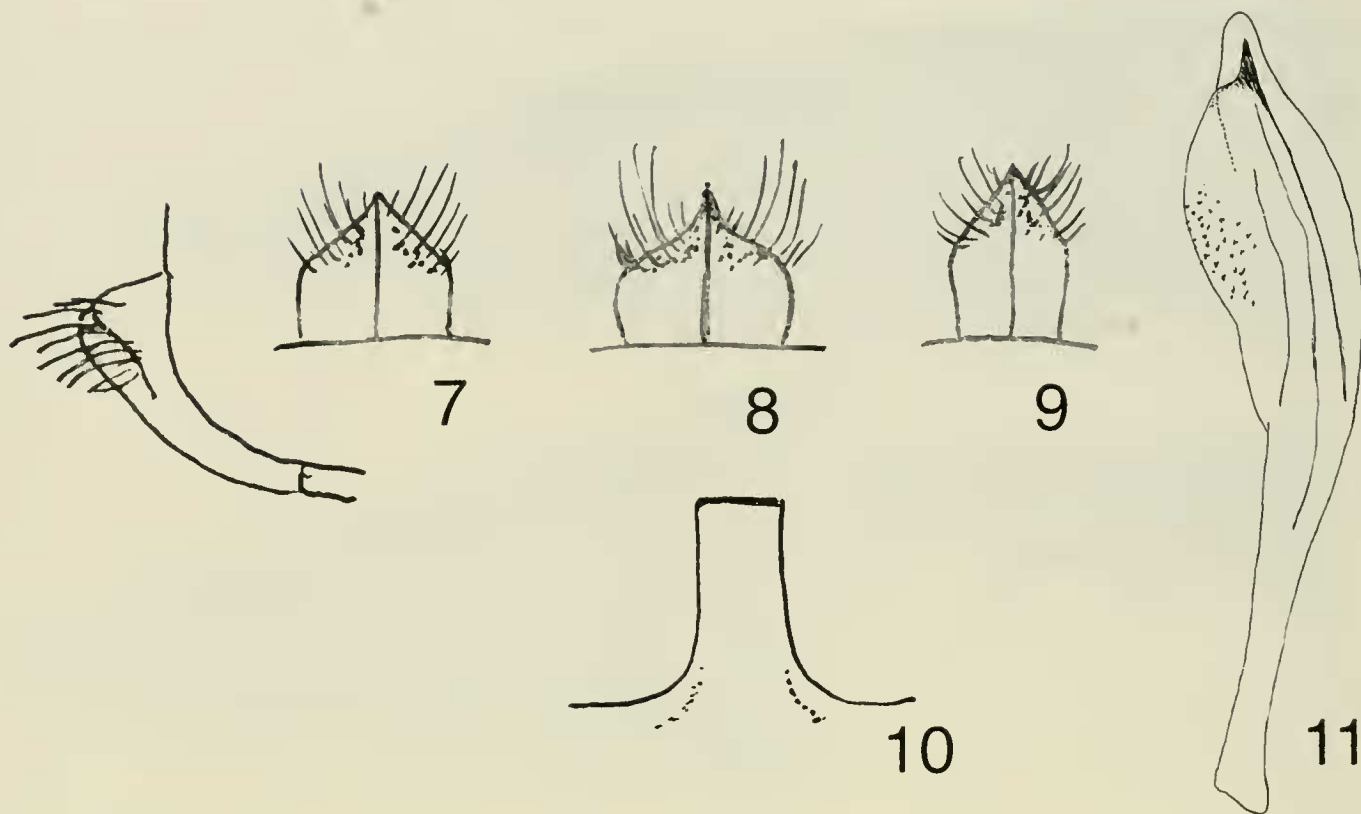


Figs. 5–6. Female lancets, entire lancet above, details of central serrulae and apex of lancet below. 5. *Nematus magus*. 6. *N. appalachia*.

and without sculpturation (Figs. 3–4); malar space broader than diameter of front ocellus. Hind basitarsus $0.9\times$ length of remaining tarsal segments combined. Sheath short, rounded at apex in lateral view; in dorsal view slender, tapering to acute apex (Fig. 9). Lancet (Fig. 6) long, without hairs

or other armature on annuli; first annulus evenly curved (not abruptly curved dorsally); distance between first and second annuli greater than distance between second and third annuli; serrulae low, broad, each with 5–6 coarse posterior subbasal teeth.

Male.—Unknown.



Figs. 7–11. 7–9, Female sheaths. 7, *Nematus magus*, lateral view and dorsal view. 8, *N. miliaris*, dorsal view. 9, *N. appalachia*, dorsal view. 10–11, *N. magus*, male. 10, Procidentia of 8th tergum. 11, Penis valve.

Type material.—Holotype: ♀, “Tucker Co., Fernow Experimental Forest, 39°03’N, 79°40’W, 7-16-IX-1992, E. M. Barrows, Malaise trap #1–3.” Deposited in the National Museum of Natural History, Smithsonian Institution, Washington, DC (USNM).

Paratypes: NORTH CAROLINA: Swain Co., GRSM ATBI, Plot: Andrews Bald, 27°38’76”E, 39°35’462”N, Malaise trap 11, July 19–Aug. 7, 2002, B. Merritt (1 ♀); Swain Co., GRSM ATBI, plot: Indian Gap, 27°86’48”E, 39°43’336”N, Malaise trap 05, July 3–18, 2002, I. C. Stocks & B. Merritt (1 ♀). TENNESSEE: Swain Co., GRSM ATBI plot: Indian Gap, 83°26’37”, 35°36’39”, Malaise trap 05, August 1–30, 2002, I. C. Stocks (1 ♀); Cocke Co., GRSM, ATBI plot: Albright Cove, 83°16’50”, 35°43’60”, Malaise trap 17, 20 July–1 Aug. 2002, C. R. Parker (1 ♀). WEST VIRGINIA: Same data as holotype, except 9-18-VII-1992, Malaise trap #4-1 (1 ♀), same except 9-19-1993, Malaise trap #4-4 (1 ♀), same except 18-28-VIII-1933, Malaise trap #1-4 (1 ♀). Deposited in

USNM and collection of Great Smoky Mountains National Park, Gatlinburg, TN.

Etymology.—The name is based on the Appalachian Mountains where this species occurs.

Discussion.—This species is separated from both *N. magus* and *N. miliaris* by its much paler whitish and orange coloration with very few black marks, smooth shining head, and slight but significant difference in the lancet and sheath (see key and Figs. 5–7, 9).

Specimens from Great Smoky Mountains National Park were taken in Malaise traps set in a grassy bald (southern grass type), 5,670’ (Andrews Bald), and a high elevation beech forest, 5,600’ (Indian Gap). Those from West Virginia were from Malaise traps in a mixed broadleaf forest, about 3,500’.

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